

WHAT IS CLAIMED IS:

1. A multi-wavelength ring laser source (MWRLS), comprising:

- (a) a pump laser source;
- (b) an optical amplifier;
- (c) an optical channel interleaver;
- (d) an optical output-signal coupler;
- (e) a polarization controller; and
- (f) an optical modulator;

wherein the components (a) to (f) are optically interconnected as a closed ring to provide the optical output-signal as the laser source.

2. The MWRLS as defined in claim 1, further comprising an optical gain flattening filter in the ring.

3. A multi-wavelength ring laser source (MWRLS), comprising:

- (a) a first wave-division multiplex (WDM) coupler for coupling a first pump laser signal into the ring laser source;
- (b) a first erbium-doped fiber (EDF) amplifier;
- (c) a first optical channel interleaver (IL);
- (d) a second WDM coupler for coupling a second pump laser signal into the ring laser source;

- (e) a second EDF amplifier;
- (f) an optical output-signal coupler for coupling out the laser source signal;
- (g) a second IL;
- (h) a polarization controller (PC); and
- (i) an optical modulator;

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wherein the components (a) to (i) are optically interconnected as a closed ring to provide the output-signal as the laser source when said first and second pump lasers are activated.

4. The MWRLS of claim 3, further comprising an optical gain flattening filter (GFF) between components (c) and (d).

5. The MWRLS of claim 4, further comprising a plurality of unidirectional optical isolators between predetermined components of said MWRLS.

20 6. The MWRLS of claim 5, said first and second pump lasers emitting signals at different wavelengths.

7. The MWRLS of claim 6, said first pump laser emitting at a wavelength of 980 nm.

8. The MWRLS of claim 6, said second pump laser emitting at a wavelength of 1480 nm.